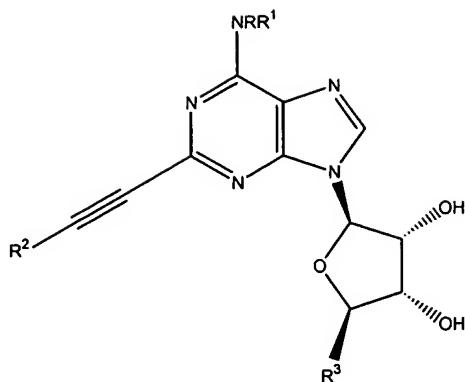


WHAT IS CLAIMED IS:

1. A compound of the formula:



5 wherein:

R is hydrogen or lower alkyl;

R¹ is optionally substituted lower alkoxy or optionally substituted cycloalkyloxy;

R² is hydrogen, optionally substituted alkyl, optionally substituted cycloalkyl, optionally substituted aryl, optionally substituted heteroaryl, or trialkylsilyl; and

10 R³ is hydroxymethyl or R⁴R⁵NC(O)-, where R⁴ and R⁵ are independently chosen from hydrogen, optionally substituted alkyl or optionally substituted cycloalkyl.

2. The compound of claim 1, wherein R³ is hydroxymethyl.

15 3. The compound of claim 2, wherein R is hydrogen.

4. The compound of claim 3, wherein R¹ is methoxy, ethoxy, n-propoxy, isopropoxy, or cyclopropoxy.

20 5. The compound of claim 4, wherein R¹ is methoxy.

6. The compound of claim 5, wherein R² is phenyl, namely (4S,2R,3R,5R)-5-(hydroxymethyl)-2-[6-(methoxyamino)-2-(2-phenylethyynyl)purin-9-yl]oxolane-3,4-diol.

7. The compound of claim 5, wherein R² is 4-methylphenyl, namely (4S,2R,3R,5R)-5-hydroxymethyl)-2-[6-(methoxyamino)-2-[(2(4-methylphenyl)ethynyl]purin-9-yl]oxolane-3,4-diol.

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8. The compound of claim 5, wherein R² is 4-fluorophenyl, namely (4S,2R,3R,5R)-2-{2-[2-4-fluorophenyl)ethynyl}-6-(methoxyamino)purin-9-yl}-5-(hydroxymethyl)oxolane-3,4-diol.

9. The compound of claim 5, wherein R² is 4-pentylphenyl, namely (4S,2R,3R,5R)-5-hydroxymethyl)-2-{6-(methoxyamino)-2-[2-(4-pentylphenylethylnyl])purin-9-yl}oxolane-3,4-diol.

10. The compound of claim 5, wherein R² is 3-trifluoromethylphenyl, namely, (4S,2R,3R,5R) -5-(hydroxymethyl)-2-[6-(methoxyamino)-2-[(2(3-trifluoromethyl)-lphenyl]ethynyl]purin-9-yl]oxolane-3,4-diol.

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11. The compound of claim 5, wherein R² is 4-methoxyphenyl, namely (4S,2R,3R,5R)-5-(hydroxymethyl)-2-[6-(methoxyamino)-2-[(2(4-methoxyphenyl)ethynyl]purin-9-yl]oxolane-3,4-diol.

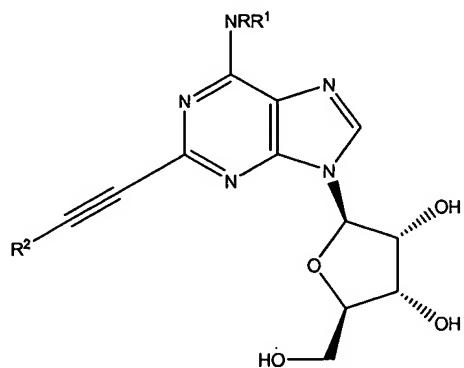
20 12. The compound of claim 5, wherein R² is 4-cyanomethylphenyl, namely 6-{9-2-[4-(2-{9-[4S,2R,3R,5R)-3,4-dihydroxy-5-(hydroxymethyl)oxolan-2-yl]-6-(methoxyamino)-purin-2-yl}ethynyl)phenyl]ethanenitrile.

25 13. The compound of claim 5, wherein R² is 4-acetylphenyl, namely, 1-[4-(2-{9-(4S,2R,3R,5R)-3-4-dihydroxy-5-(hydroxymethyl) oxolane-2-yl}ethynyl)phenyl]ethan-1-one.

14. The compound of claim 5, wherein R² is butyl, namely (4S,2R,3R,5R)-2-{2-[2-hex-1-ynyl-6-methoxyamino)purin-9-yl}-5-(hydroxymethyl)oxolane-3,4-diol.

15. The compound of claim 5, wherein R² is 2-hydroxypropyl, namely (4S,2R,3R,5R)-5-(hydroxymethyl)-2-[2-(4-hydroxypent-1-ynyl)-6-(methoxyamino) purin-9-yl]-5-(hydroxymethyl)oxolane-3,4-diol.
- 5 16. The compound of claim 5, wherein R² is 2-hydroxycyclohexyl, namely (4S,2R,3R,5R)-5-(hydroxymethyl)-2-[2-(2-hydroxycyclohexyl-1-ynyl)-6-(methoxyamino) purin-9-yl]-5-(hydroxymethyl)oxolane-3,4-diol.
- 10 17. The compound of claim 5, wherein R² is 2-pyridyl, namely (4S,2R,3R,5R)-5-(hydroxymethyl)-2-[6-(methoxyamino)-2-[(2-(2-pyridyl)ethynyl) purin-9-yl]oxolane-3,4-diol.
18. The compound of claim 1, wherein R³ is R⁴R⁵NC(O)-.
19. The compound of claim 18, wherein R is hydrogen.
- 15 20. The compound of claim 19, wherein R¹ is methoxy.
21. The compound of claim 20, wherein R⁴ is hydrogen and R⁵ is methyl or ethyl.
- 20 22. The compound of claim 21, wherein R² is optionally substituted phenyl or optionally substituted pyridyl.
23. The compound of claim 22, wherein R² is phenyl, 4-methylphenyl, 4-fluorophenyl, 3-trifluoromethylphenyl, 4-methoxyphenyl, 2-pyridyl, 3-pyridyl, or 4-pyridyl.
- 25 24. A method of treating a disease state by stimulating adenosine A₃ receptors, comprising administering to a mammal in need thereof a therapeutically effective dose of a compound of claim 1.
- 30 25. The method of claim 24, wherein the disease state is cancer.

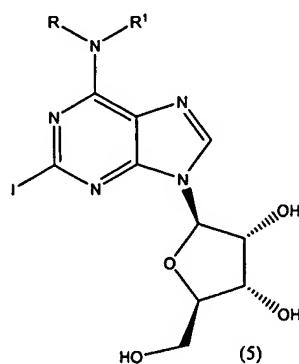
26. The method of claim 24, wherein the disease state is neutropenia.
27. A pharmaceutical composition comprising at least one pharmaceutically acceptable excipient and a therapeutically effective amount of a compound of claim 1.
- 5
28. A process for preparing a compound of the formula:



wherein:

- R is hydrogen or lower alkyl;
- 10 R¹ is optionally substituted lower alkoxy or optionally substituted cycloalkyloxy;
- R² is hydrogen, optionally substituted alkyl, optionally substituted cycloalkyl, optionally substituted aryl, optionally substituted heteroaryl, or trialkylsilyl; and
- R³ is hydroxymethyl or R⁴R⁵NC(O)-, where R⁴ and R⁵ are independently chosen from hydrogen, optionally substituted alkyl or optionally substituted cycloalkyl;
- 15 comprising:

contacting a compound of the formula



with an amine of the formula RR¹NH
wherein R and R¹ are as defined above.

29. The process of claim 28, wherein the reaction is conducted in tetrahydrofuran at room
5 temperature for about 4 days.
30. The process of claim 29, wherein the reaction is conducted in the presence of a base.
31. The process of claim 30, wherein the base is triethylamine.

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